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| 10/617,363 | 07/11/2003 | Zhangyi Wu | 45047 | 1506 |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/617,363

Applicant(s)

WU ET AL.

Examiner

GERMAN VIANA DI PRISCO

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2009.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4-6, 8-10, 12, 13, 16-28, 30-37 and 42 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 8-10, 12, 13, 16-24 and 30-33 is/are allowed.
6) ☒ Claim(s) 1, 2, 4-6, 25-28, 34-37 and 42 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 21 September 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-646)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The amended drawing corresponding to Figure 1 was received on 09/21/2009. This drawing is accepted.

Specification

2. The amendment to paragraph 46 of the specification filed 09/21/2009 has been entered.

Allowable Subject Matter

3. Claims 8-10, 12, 13, 16-24, and 30-33 are allowed.

Response to Arguments

4. Applicant's arguments filed 09/21/2009 have been fully considered but they are not persuasive.

Regarding claims 1, 3, 5, 11, 25, 27, 34 and 42 and the 35 U.S.C. 103 rejection in view of Peleg as modified by Evans, the Applicant basically argues in page 15 of the Remarks that the data cells in Pelag are generated prior to any inverse multiplexing and therefore Peleg does not teach a packet stream number corresponding to the respective data stream; and that Evans does not teach the claimed framer configured to receive on of the parallel data streams, and to generate a stream of packets. The Examiner admitted in the page 4 of the Office action mailed on 05/20/2009 that Pelag does not expressly disclose that each packet generated by the framer has a packet index number and a packet stream number corresponding to its respective parallel data stream. However Pelag teaches that tags attached to each cell data generated by the chopper

device are used by the reconstructor for reordering the data cells (see paragraphs 17-19). Nevertheless Peleg is silent about the what information is included in the tags; the Examiner has relied upon Evans to show that in including a frame sequence number a packet index number (frame sequence number in Evans) and a packet stream number (2-bit line identifier in Evans) corresponding to a respective parallel data stream are well known in inverse multiplexing (see Col. 5, l. 27-67).

The Applicant further argues with regard to rejection of claims 6, 28 and 37 based on of Applicant's own admission of prior art, that the mere disclosure that existing DS3 test equipment can send multiple copies of a loopback command provides no basis for obviousness of the claimed feature. The Examiner respectfully disagrees because test sets provide the capability of transmitting a selectable number of loopback activation codes in order to target a particular repeater in-between two end-stations (or either of the end-stations) since each repeater is programmed to activate a loopback only for a specific code. This feature is useful because by isolating repeater sections faulty lines or repeaters can be accurately detected. If all repeaters activated a loopback at the same time, this would render the test set useless for practical purposes.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 5, 11, 25, 27, 34, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peleg et al. ("Peleg", United States Patent Application Publication

No.: US 2003/0107999 A1) in view of Evans (United States Patent No.: US 6,928,056 B2) .

Consider claims 1 and 34, Peleg discloses a system for transmitting a DS3 data stream over a few twisted pair conductors comprising:

a high speed data interface (data transmission terminal 17) configured to receive said DS3 data stream (the broadband stream 9 is a PDH-data stream, hence is configured to receive a DS3 data stream) and inversely multiplex said high speed data stream into four parallel data streams (as carried by data transmission lines 3,4,5,6) that each comprise an approximately 11 megabits per second stream (Mbps) (a DS3 divided by four is approximately 11 megabits per second), a framer (chopper device 8), and a plurality of modems that modulate each corresponding stream of packets onto a twisted pair conductor (modems 3a, 4a, 5a, and 6a which can be based on VDSL technology, it is well known that VDSL can transmit at 13 Mbps) (see Fig. 2 and paragraphs 1, 11, 17, 20, 23, 38-41, 50 and 54).

However Peleg does not expressly that each packet generated by the framer has a packet index number and a packet stream number corresponding to its respective said parallel data stream.

In the same field of endeavor Evans discloses that each packet generated by the framer has a packet index number (frame sequence number) and a packet stream number (2-bit line identifier) corresponding to its respective said parallel data stream (see Col. 5, l. 27-67).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a packet index number and a packet stream number as disclosed by Evans in the system of Peleg in order to identify an error condition and the sequence of a data stream that is taken from a high bandwidth line and split among low bandwidth links.

Consider claim 11, and as applied to claim 1 above Peleg further discloses a system for transmitting high speed data over a plurality of relatively low bandwidth unshielded twisted copper pairs comprising a plurality of DSL modems which implies the use of a low frequency band in the upstream direction and a high frequency band for the downstream direction (paragraph [0054]).

Consider claims 25, Peleg discloses a plurality of modems that demodulate each a plurality of parallel signals received over said plurality of twisted pair conductors that each can comprise an approximately 13 megabits per second (Mbps) stream into a few data streams comprising a stream of packets (modems 3b, 4b, 5b, and 6b which can be based on VDSL technology, it is well known that VDSL can transmit at 13 Mbps), a deframer (reconstructor 11), a high speed data interface (demultiplexing device 2) configured to receive said plurality of synchronized parallel data streams and to multiplex said plurality of synchronized parallel data streams into said DS3 (the broadband stream is a PDH-data stream, hence is configured to receive a DS3 data stream) data stream (see Fig. 2 and paragraphs 1, 11, 17, 20, 23, 38-41, 50 and 54).

However Peleg does not expressly that each packet has a packet index number and a packet stream number corresponding to its respective said parallel data stream.

In the same field of endeavor, Evans discloses that each has a packet index number (frame sequence number) and a packet stream number (2-bit line identifier) corresponding to its respective said parallel data stream (see Col. 5, l. 27-67).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a packet index number and a packet stream number as disclosed by Evans in the system of Peleg in order to identify an error condition and the sequence of a data stream that is taken from a high bandwidth line and split among low bandwidth links.

Consider claim 27 and as applied to claim 25 above, Peleg further discloses inverse multiplexing a broadband data stream (that is preferably a PDH-data stream, hence a DS3 data stream) into four synchronized parallel data streams with a data rate of approximately 11 Mbps. (a DS3 divided by four is approximately 11 megabits per second) (see Fig. 2 and paragraphs 1, 11, 17, 20, 23, 38-41, 50 and 54).

Consider claim 42, and as applied to claim 34 above Peleg further discloses that modems 3a, 4a, 5a, 6a and 3b, 4b, 5b, 6 can be based on any DSL technology which inherently teaches the use of a low frequency band in the upstream direction and a high frequency band for the downstream direction (paragraphs[0038] and [0054]).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peleg et al. ("Peleg" United States Patent Application Publication No.: US 2003/0107999 A1) in view of Evans (United States Patent No.: US 6,928,056 B2) , and further in view Knapp et al. ("Knapp", United States Patent Application Publication No.: US 2008/0095191A1).

Consider claim 2 and as applied to claim 1 above, Peleg does not explicitly disclose the size of the packets but Evans teaches that each frame has a framing byte (byte 1:frame alignment word), a byte comprising the packet index number and the packet stream number (byte 426: line identification and byte 427: frame sequence number). The frame taught by Evans has 428 and not 64 bytes as claimed.

In the same field of endeavor Knapp teaches a frame of 64bytes (paragraph [0039])

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a 64-byte packet as taught by Knapp in the system of Peleg as modified by Evans in order to efficiently transfer different data types synchronously across the network.

Claims 4, 26 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peleg et al. ("Peleg", United States Patent Application Publication No.: US 2003/0107999 A1) in view of Evans (United States Patent No.: US 6,928,056 B2), and further in view of Barlev et al. ("Barlev", United States Patent Application Publication No.: US 2005/0220180 A1).

Consider claims 4, 26 and 35, and as applied to claims 1, 25 and 34 respectively above, Peleg as modified by Evans does not expressly disclose the claimed limitation.

In the same field of endeavor Barlev as further discloses directing the bits of the DS3 data stream to the parallel data streams in accordance with a round robin pattern (paragraph [0113]).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to direct the bits of the DS3 stream as disclosed by Barlev in the system of Peleg as modified by Evans in order to take advantage of existing copper pairs.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peleg et al. ("Peleg", United States Patent Application Publication No.: US 2003/0107999 A1) in view of Evans (United States Patent No.: US 6,928,056 B2), and of Knapp et al. ("Knapp", United States Patent Application Publication No.: US 2008/0095191A1), and further in view of Barlev et al. ("Barlev", United States Patent Application Publication No.: US 2005/0220180 A1).

Consider claim 5 and as applied to claim 2 above Peleg as modified by Evans and further modified by Knapp does not disclose the second byte comprising stuffing bits to allow the inverse multiplex operation of said high speed data interface to vary the number of bytes in a packet.

In the same field of endeavor Barlev discloses using stuffing bits (paragraph

[0275]).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use stuffing bits as disclosed by Barlev in the system of Peleg as modified by Evans and Knapp in order to provide easier buffering schemes.

6. Claims 6, 28 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peleg et al. ("Peleg", United States Patent Application Publication No.: US 2003/0107999 A1) in view of Evans (United States Patent No.: US 6,928,056 B2), and further in view of Applicant's own admission of prior art.

Consider claims 6 and 37, Peleg discloses a system for transmitting a DS3 data stream over a few twisted pair conductors comprising:

a high speed data interface (data transmission terminal 17) configured to receive said DS3 data stream (the broadband stream 9 is PDH-data stream, hence is configured to receive a DS# data stream) and inversely multiplex said high speed data stream into four parallel data streams (as carried by data transmission lines 3,4,5,6) that each comprise an approximately 11 megabits per second stream (Mbps) (a DS3 divided by four is approximately 11 megabits per second), a framer (chopper device 8), and a plurality of modems that modulate each corresponding stream of packets onto a twisted pair conductor (modems 3a, 4a, 5a, and 6a which can be based on VDSL technology, it is well known that VDSL can transmit at 13 Mbps), and a processor (central processing units 15a and 15b in Fig. 2) (see Fig. 2 and paragraphs 1, 11, 17,

20, 23, 38-41, 50 and 54).

However Peleg does not expressly that each packet generated by the framer has a packet index number and a packet stream number corresponding to its respective said parallel data stream.

In the same field of endeavor Evans discloses that each packet generated by the framer has a packet index number (frame sequence number) and a packet stream number (2-bit line identifier) corresponding to its respective said parallel data stream (see Col. 5, l. 27-67).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a packet index number and a packet stream number as disclosed by Evans in the system of Peleg in order to identify an error condition and the sequence of a data stream that is taken from a high bandwidth line and split among low bandwidth links.

Nonetheless Peleg as modified by Evans does not specifically disclose that the processor is configured to identify a loopback code in said high speed data stream, wherein said processor is further configured to pass through a first received loopback code to another device, and to enter a loopback mode if an nth subsequent loopback code is received without an intervening loop down code.

The Applicant has disclosed in paragraph [0022] of specification that most existing test DS3 test equipment can easily send multiple copies of the loop commands without an intervening loop down command.

Therefore it would have been obvious to a person of ordinary skill in the art at the

time the invention was made to incorporate the claimed feature in order to perform testing using the capabilities of existing test equipment.

Consider claims 28 Peleg discloses a plurality of modems that demodulate each a plurality of parallel signals received over said plurality of twisted pair conductors (modems 3b, 4b, 5b, and 6b), a deframer (reconstructor 11), a high speed data interface (demultiplexing device 2) configured to receive said plurality of synchronized parallel data streams and to multiplex said plurality of synchronized parallel data streams into said high speed data stream, and a processor (central processing units 15a and 15b in Fig. 2) (see Fig. 2 and paragraphs 1, 11, 17, 20, 23, 38-41, 50 and 54).

However Peleg does not expressly state that each packet has a packet index number and a packet stream number corresponding to its respective said parallel data stream.

In the same field of endeavor Evans discloses that each has a packet index number (frame sequence number) and a packet stream number (2-bit line identifier) corresponding to its respective said parallel data stream (see Col. 5, l. 27-67).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a packet index number and a packet stream number as disclosed by Evans in the system of Peleg in order to identify an error condition and the sequence of a data stream that is taken from a high bandwidth line and split among low bandwidth links.

Nonetheless Peleg as modified by Evans does not specifically disclose that the processor is configured to identify a loopback code in said high speed data stream,

wherein said processor is further configured to pass through a first received loopback code to another device, and to enter a loopback mode if an nth subsequent loopback code is received without an intervening loop down code.

The Applicant has disclosed in paragraph [0022] of specification that most existing test DS3 test equipment can easily send multiple copies of the loop commands without an intervening loop down command.

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the claimed feature in order to perform testing using the capabilities of existing test equipment.

7. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable Peleg et al. ("Peleg", United States Patent Application Publication No.: US 2003/0107999 A1) in view of Evans (United States Patent No.: US 6,928,056 B2), and further in view of Wolf et al. ("Wolf", United States Patent Application Publication No.: US 2002/0080825 A1).

Consider claim 36 and as applied to claim 34 above, Peleg as modified by Evans does not specifically disclose that the stream identifier received from each of a plurality of the four streams transmitted on respective twisted pair conductors can be used to determine that a miswire condition exists between at least two of the twisted pair conductors.

In the same field of endeavor Wolf discloses using individual bits or bit sequences or identifications codes which can be used to determine wiring errors

(paragraph [0043]).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use identification codes as disclose by Wolf in the system of Peleg as modified by Evans in order to detect wiring errors.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERMAN VIANA DI PRISCO whose telephone number is (571)270-1781. The examiner can normally be reached on Monday through Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/617,363

Page 15

Art Unit: 2617

/Germán Viana Di Prisco/

Examiner, Art Unit 2617

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Supervisory Patent Examiner, Art Unit 2617

December 14, 2009